

Application No. 09/158,272
Supplemental Amdt. Dated November 17, 2003
Reply to Official Action of June 17, 2003

Amendments to the Claims

The listing of the claims will replace all prior versions, and listings, of claims on this application:

Listing of Claims:

Claims 1-26 (Cancelled)

Claim 27 (Currently Amended) A method for mediating ~~transgenic~~ intramolecular recombination ~~selected from deletions of DNA sequences located between two six sites and inversions of DNA sequences located between two six sites~~, in *in vitro* mammalian cells, comprising the steps of transfecting the mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the mammalian cells with DNA sequences containing six sites that allow recombination activity; wherein recombination occurs between two six sites.

Claim 28 (Currently Amended) A method for mediating ~~transgenic~~ intramolecular recombination ~~selected from deletions of DNA sequences located between two six sites and inversions of DNA sequences located between two six sites~~, in *in vitro* mammalian cells, comprising the steps of transfecting the mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing six sites that allow recombination activity into chromatin of the mammalian cells; wherein recombination occurs between two six sites.

Claims 29-32 (Cancelled)

Application No. 09/158,272
Supplemental Amdt. Dated November 17, 2003
Reply to Official Action of June 17, 2003

Claim 33 (Previously Amended) A method according to claim 27, wherein two or more intramolecular recombination events involving different DNA sequences located between different *six* sites occur at the same time.

Claim 34 (Cancelled)

Claim 35 (Previously Amended) A method according to claim 27, wherein an intramolecular deletion of DNA sequences located between directly oriented *six* sites is obtained.

Claim 36 (Previously Amended) A method according to claim 27, wherein an intramolecular inversion of DNA sequences located between inverted repeated *six* sites is obtained.

Claim 37 (Previously Amended) A method according to claim 27, wherein an intramolecular deletion of a DNA sequence located between two directly oriented *six* sites is obtained.

Claim 38 (Previously Amended) A method according to claim 27, wherein an intramolecular inversion of a DNA sequence located between two inversely oriented *six* sites is obtained.

Claim 39 (Currently Amended) A method ~~according to claim 27, for mediating recombination between two *six* sites, in *in vitro* cells, comprising the steps of transfecting the cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the cells with DNA sequences containing *six* sites that allow recombination activity;~~ wherein an intramolecular deletion of a DNA sequence located between direct repeated DNA sequences containing *six* sites is obtained.

Application No. 09/158,272
Suppl mental Amdt. Dated November 17, 2003
Reply t Official Action of Jun 17, 2003

Claim 40 (Currently Amended) A method ~~according to claim 27, for mediating recombination between two six sites. in in vitro cells, comprising the steps of transfecting the cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the cells with DNA sequences containing six sites that allow recombination activity; wherein an intramolecular inversion of a DNA sequence located between inverted repeated DNA sequences containing six sites is obtained.~~

Claim 41 (Previously Amended) A method according to claim 35, wherein the DNA sequences are located within an extrachromosomal DNA substrate.

Claim 42 (Previously Amended) A method according to claim 36, wherein the DNA sequences are located within an extrachromosomal DNA substrate.

Claim 43 (Currently Amended) A method for catalyzing site-specific resolution of DNA sequences located between six sites in an extrachromosomal substrate transfected into an *in vitro* ~~mammalian~~ cell, comprising the step of catalyzing the site-specific resolution with prokaryotic beta recombinase derived from *Streptococcus*; wherein recombination occurs between six sites.

Claim 44 (Previously Presented) A method according to claim 43, wherein the extrachromosomal substrate is a plasmid.

Claim 45 (Previously Presented) A method according to claim 43, wherein the gene coding is introduced by transfection.

Claim 46 (Previously Presented) A method according to claim 43, wherein the resolution is deletion.

Claim 47 (Previously Presented) A method according to claim 43, wherein the resolution is inversion.

Application No. 09/158,272
Supplemental Amdt. Dated November 17, 2003
Reply to Official Action of June 17, 2003

Claims 48-49 (Cancelled)

Claim 50 (Previously Amended) A method according to claim 66, wherein the *six* sites are wrapped on a nucleosome at several locations.

Claims 51-52 (Cancelled)

Claim 53 (Currently Amended) A method for mediating ~~transgenic intramolecular~~ recombination in *in vitro* ~~mammalian~~ cells, comprising the steps of transfecting ~~mammalian~~ the cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the ~~mammalian~~ cells with DNA sequences containing *six* sites that allow recombination activity; wherein recombination occurs between *six* sites and in the presence of cell factors comprising HMG1 chromatin-associated protein.

Claim 54 (Cancelled)

Claim 55 (Currently Amended) A method for mediating ~~transgenic intramolecular~~ recombination in chromatin structures ~~of mammalian cells~~, comprising the steps of transfecting *in vitro* ~~mammalian~~ cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the ~~mammalian~~ cells; wherein recombination occurs between *six* sites and in the presence of cell factors comprising HMG1 chromatin-associated protein.

Claim 56 (Previously Amended) A method according to claim 28, wherein an intramolecular deletion of DNA sequences located between direct repeated *six* sites is obtained.

Claim 57 (Previously Amended) A method according to claim 28, wherein an intramolecular inversion of DNA sequences located between inverted repeated *six* sites is obtained.

Application No. 09/158,272
Suppl mental Amdt. Dated Nov mber 17, 2003
Reply to Official Action f June 17, 2003

Claims 58-61 (Cancelled)

Claim 62 (Previously Presented) A method according to claim 41, wherein the extrachromosomal DNA substrate is a plasmid.

Claim 63 (Previously Presented) A method according to claim 42, wherein the extrachromosomal DNA substrate is a plasmid.

Claim 64 (Currently Amended) A method for mediating ~~transgenic~~ intramolecular recombination ~~selected from deletions of DNA sequences located between two *six* sites and inversions of DNA sequences located between two *six* sites~~, in mouse cells, comprising the steps of transfecting mouse cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the mouse cells with DNA sequences containing *six* sites that allow recombination activity; wherein recombination occurs between two *six* sites.

Claim 65 (Currently Amended) A method for mediating ~~transgenic~~ intramolecular recombination ~~selected from deletions of DNA sequences located between two *six* sites and inversions of DNA sequences located between two *six* sites~~, in mouse cells, comprising the steps of transfecting mouse cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the mouse cells; wherein recombination occurs between two *six* sites.

Claim 66 (Currently Presented) A method for catalyzing site-specific resolution of DNA sequences located between *six* sites which are integrated into chromatin of an *in vitro* ~~mammalian~~ cell, comprising the step of catalyzing the site-specific resolution with prokaryotic beta recombinase derived from *Streptococcus*; wherein recombination occurs between two *six* sites.

Application No. 09/158,272
Supplemental Amdt. Dated November 17, 2003
Reply to Official Action of June 17, 2003

Claim 67 (Cancelled)

Claim 68 (New) A method according to claim 27, wherein the cells comprise eukaryotic cells.

Claim 69 (New) A method according to claim 27, wherein the cells comprise mammalian cells.

Claim 70 (New) A method according to claim 28, wherein the cells comprise eukaryotic cells.

Claim 71 (New) A method according to claim 28, wherein the cells comprise mammalian cells.

Claim 72 (New) A method according to claim 39, wherein the cells comprise eukaryotic cells.

Claim 73 (New) A method according to claim 39, wherein the cells comprise mammalian cells.

Claim 74 (New) A method according to claim 40, wherein the cells comprise eukaryotic cells.

Claim 75 (New) A method according to claim 40, wherein the cells comprise mammalian cells.

Claim 76 (New) A method according to claim 43, wherein the cells comprise eukaryotic cells.

Claim 77 (New) A method according to claim 43, wherein the cells comprise mammalian cells.

Applicati n No. 09/158,272
Supplemental Amdt. Dated November 17, 2003
Reply to Official Action of June 17, 2003

Claim 78 (New) A method according to claim 53, wherein the cells comprise eukaryotic cells.

Claim 79 (New) A method according to claim 53, wherein the cells comprise mammalian cells.

Claim 80 (New) A method according to claim 55, wherein the cells comprise eukaryotic cells.

Claim 81 (New) A method according to claim 55, wherein the cells comprise mammalian cells.

Claim 82 (New) A method according to claim 66, wherein the cells comprise eukaryotic cells.

Claim 83 (New) A method according to claim 66, wherein the cells comprise mammalian cells.